ARCADIS
Infrastructure · Water · Environment · Buildings

ARCADIS of New York, Inc.
6723 Towpath Road
P.O Box 66
Syracuse
New York 13214-0066
Tel 315 446 9120
Fax 315 445 9161
www.arcadis-us.com

ENVIRONMENT

Mr. Michael Berkoff
Remedial Project Manager
U.S. EPA Superfund Division/Region 5
Mail Code SR-6J
77 West Jackson Blvd.
Chicago, Illinois 60604-3590

Subject:
Willow Boulevard/A-Site Groundwater Monitoring Program
Kalamazoo, Michigan

Date:
December 6, 2012

Contact:
Patrick N. McGuire

Phone:
315.671.9233

Email:
Pat.McGuire@arcadis-us.com

Our ref:
B0064581.0003.00672

Dear Mr. Berkoff:

Georgia-Pacific, LLC (Georgia-Pacific) and ARCADIS, on behalf of Georgia-Pacific, have recently engaged with the Michigan Department of Environmental Quality (MDEQ) and the U.S. Environmental Protection Agency (USEPA) regarding post-closure monitoring requirements for the Willow Boulevard/A-Site Operable Unit (WB/A OU) of the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site (Site). In a September 13th conference call and at a October 22, 2012 meeting in Lansing, ARCADIS presented options for demonstrating compliance with Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, Part 201 (Part 201), in particular a finding of *de minimis* potential contribution of PCB at the groundwater surface water interface (GSI) adjacent to the WB/A OU. ARCADIS also described proposed performance monitoring activities to comply with the Record of Decision and Consent Decree for the WB/A OU. The available data and the hypothetical PCB discharge estimates demonstrate that the WB/A OU has a *de minimis* effect on the groundwater-surface water interface with respect to polychlorinated biphenyls (PCBs)

We are awaiting concurrence from MDEQ with our view that the WB/A OU is a *de minimus* situation with respect to potential PCB influences at the GSI and in the Kalamazoo River. With MDEQ's concurrence, we will then submit a request for a formal determination that Part 201 requirements have been met by the *de minimis* demonstration.

Under the current Part 201 rules, the extensive Vertical Aquifer Sampling (VAS) characterization of the upper aquifer previously requested by MDEQ is not necessary, or warranted in this case. We look forward to discussing an appropriate approach to design and installation of a groundwater monitoring well network.

At the request of MDEQ, with this letter we provide available hydrogeologic information for the WB/A OU that is relevant to selection of monitoring well screen depth intervals near the groundwater surface.

866 203 7023
317 547 8225

Hydrogeologic Information

Hydrogeologic data available for the site support an understanding that groundwater flow in the shallow aquifer above the silt unit is dominated by lateral flow from upland areas toward the river.

- Attachment 1 – *Cross Section Location Map* – presents locations of wells and borings used to develop the cross-sectional groundwater flow diagrams that are presented in Attachment 2.

- Attachment 2 – *Cross Sections B-B', C-C', and D-D'* – present geology and groundwater flow diagrams from the upland to the river, through the Willow Boulevard and A-Site disposal areas, respectively. The flow diagrams indicate predominant horizontal groundwater flow beneath the disposal areas toward the river. These diagrams support a monitoring well network design that focuses on shallow groundwater.

- Attachment 3 – *Logs for Soil Borings and Monitoring Wells at WB/A OU* - reference detailed descriptions of site geology and well screen depth intervals.

- Attachment 4 – *Parker-Hannifin Horizontal Plume Maps* – figures showing monitoring well locations and TCE and cis-1,2-DCE groundwater plumes associated with Parker-Hannifin facility. The groundwater plume extends from the Parker-Hannifin site approximately 1 mile north to the WB/A OU. The figures, which also show depth of impact to groundwater, demonstrate lateral groundwater flow to the river.

- Attachment 5 – *Log for Parker-Hannifin Monitoring Well Cluster GS-MW-OFF-10(S, M, D)* - well cluster located along Willow Boulevard between Lamont and Willis avenues. Clustered wells are installed to depths of approximately 20, 38, and 72 feet below ground surface (bgs). The boring log for this location shows a good correlation with the WB/A OU site geology as mapped from soil borings, and extends quite a bit deeper to bedrock at 74 feet bgs. The deepest well in the cluster is screened below a confining silt unit that separates shallow and deep aquifers.

- Attachment 6 – *Historical Measurements of Groundwater Levels at Parker-Hannifin Monitoring Well Cluster GS-MW-OFF-10(S, M, D)* - data indicate that a neutral to slightly downward vertical gradient typically exists in the shallow aquifer above the confining silt unit at this location upgradient of the WB/A OU. At this well cluster, detections of vinyl chloride and several other volatile compounds are observed only in the intermediate depth (M) well, which is screened approximately 38 feet below the water table. Given the 1 mile distance from the Parker-Hannifin property, these data are consistent with the WB/A OU site conceptual model in which groundwater flow is predominated by lateral flow toward the river. The water elevation data for the deep aquifer, represented by

Monitoring Well GS-MW-OFF-10D, indicate there is an upward gradient between the deep and shallow aquifers.

- Attachment 7 – *A-Site Sheetpile Design Drawings* – drawings detailing the alignment and design elevations of the sheetpile wall at A-Site relative to the edge of the disposal area and the approximate median and 100-year flood elevations of the river. The sheetpile bottom (737 ft AMSL) may be of use in considering design of the groundwater monitoring network.

With the information provided herein and in previous reports, meetings, and presentations, we reiterate our request for USEPA's and MDEQ's feedback on our demonstration that PCB in groundwater presents a *de minimis* effect on the Kalamazoo River, consistent with Part 201. As discussed during our April 2012 meeting, GP is willing to perform an appropriate VAS program for purposes of selecting groundwater monitoring well screen depths – focused the shallow aquifer zones most likely to intersect groundwater flow paths in close proximity to the bottom of the landfill. We see no technical basis or need to pursue deeper zones, not only based on the available site data but also in consideration of the *de minimus* condition with respect to PCBs. We are interested in hearing the agencies' thoughts on what level of effort is needed in this regard prior to our planned December 19th meeting in Kalamazoo. We are hopeful we can agree upon the basic components of the groundwater monitoring network construction and analytical program at our planned meeting. Should you have any questions relating to the information presented or if ARCADIS can provide any additional assistance, please feel free to call me at 312.671.9233 or Garry Griffith at 734.735.0780 at your convenience.

Sincerely,

ARCADIS of New York, Inc.

Patrick N. McGuire
Project Coordinator/Principal Environmental Engineer

Attachments (7)

Copies:
Michael Berkoff, USEPA
John Bradley, MDEQ
Anne Couture, MDEQ
Daria Devantier, MDEQ
Steven Hoin, MDEQ
David Kline, MDEQ
Kristi Zakrzewski, MDEQ
Jeff Keiser, CH2M HILL

Garry Griffith, Georgia-Pacific
Michael Erickson, ARCADIS
Daniel O'Neill, ARCADIS

ARCADIS

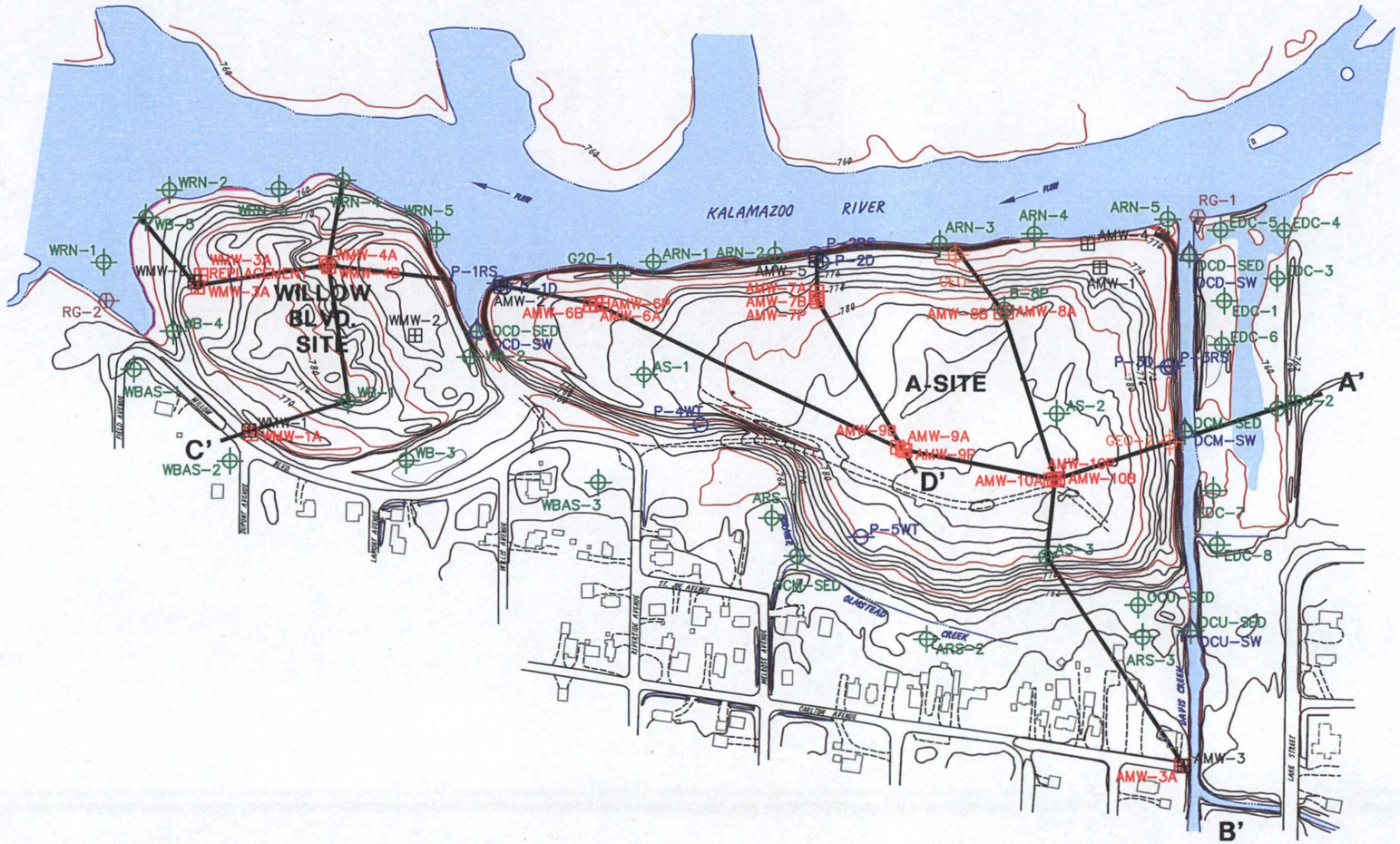
Mr. Michael Berkoff
December 6, 2012

Blind Courtesy Copies:
Lisa Coffey, ARCADIS
Douglas K. Cowin, ARCADIS

ARCADIS

Attachment 1

Cross Section Location Map



LEGEND

AMW–4	PRE–RI MONITORING WELL
WMW–3	MONITORING WELL OR CLUSTER INSTALLED IN 1993
WB–1	BORING INSTALLED IN 1993
GEO–1	GEOTECHNICAL BORING INSTALLED IN 1993
P–2D	PIEZOMETER INSTALLED IN 1993
SW–1	SURFACE WATER SAMPLE, INSTALLED IN 1993
RG–1	RIVER GAUGE STATION INSTALLED IN 1993
780	ELEVATION CONTOUR (NGVD 1929)
	EDGE OF WATER OR DRAINAGE CHANNEL
	UNPAVED ROAD/TRAIL
	EXISTING SHEETPILE WALL
	BERM
A——A'	CROSS–SECTION LOCATION

NOTES:

1. UNLESS OTHERWISE INDICATED ALL SAMPLE LOCATIONS SURVEYED BY WADE–TRIM INC. OCTOBER 1993 THROUGH AUGUST 1996. SAMPLES ARN–1 THROUGH ARN–5 AND RN–1 THROUGH WRN–5 WERE SURVEYED BY BBL JULY 1993.
2. TOPOGRAPHIC MAPPING PRODUCED USING PHOTOGRAMMETRIC METHODS BY LOCKWOOD, INC. FROM AERIAL PHOTOGRAPHY FLOWN APRIL 1991. TOPOGRAPHIC CHANGES AFTER APRIL 1991 ARE NOT SHOWN.
3. SAMPLE RESULTS AS REPORTED BY AQUATEC, INC. 1995 AND 1996.

0 300' 600'

GRAPHIC SCALE

KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE

GEOLOGIC CROSS-SECTION LOCATION MAP

ARCADIS

FIGURE 1

CITY:SYRACUSE IV/GROUP-141 DB:W.JONES LD:(Opt) PIC:(Opt) PM:(Reqd) TM:(Opt) LYR:(Opt)ON=*;OFF=*REF
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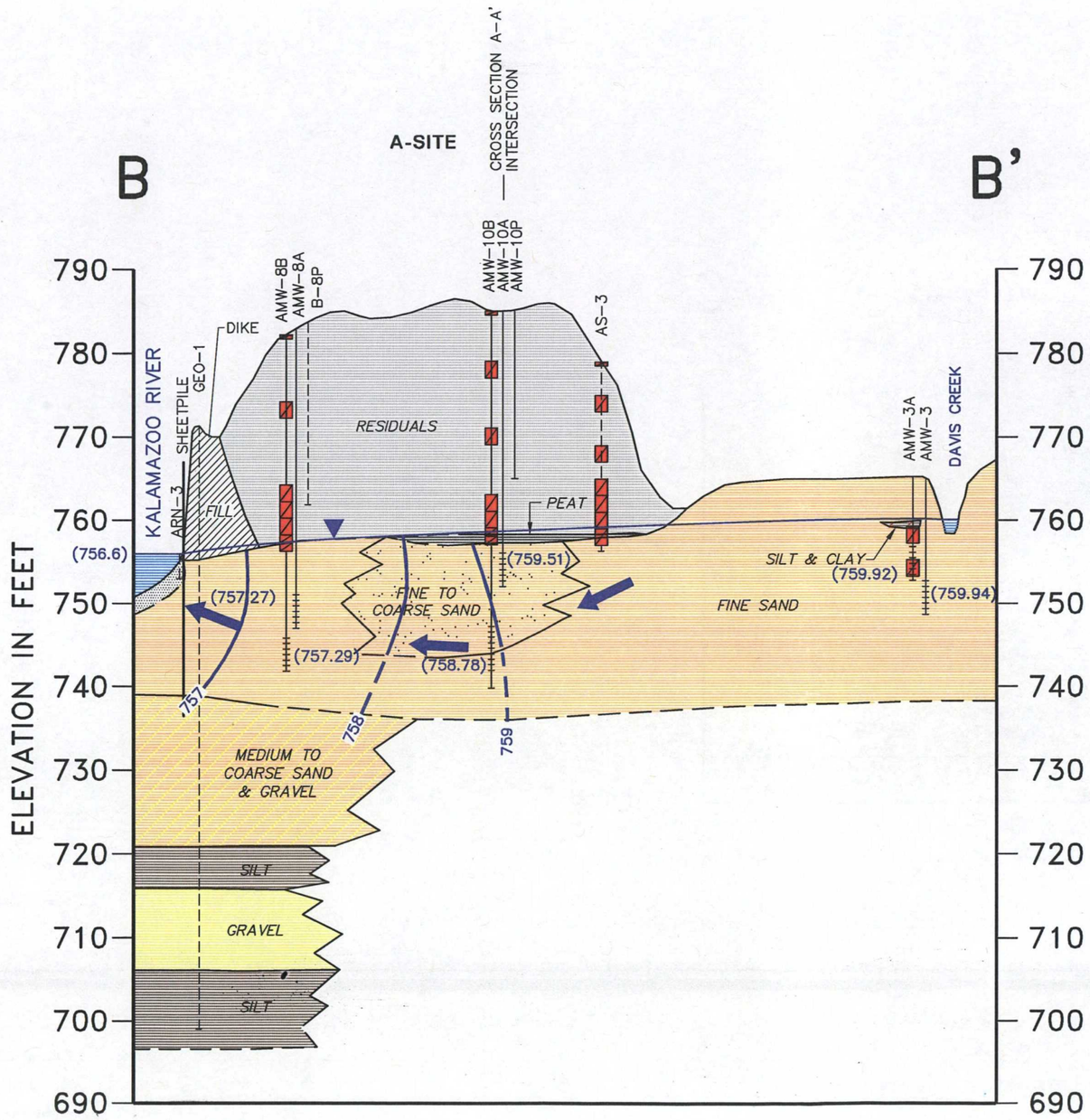
XREFS: IMAGES: PROJECTNAME: —
64581X02

ARCADIS

Attachment 2

Cross Sections B-B', C-C', D-D'



16' 0 16' 32'
1"=16'
VERTICAL SCALE:

240' 0 240' 480'
1"=240'
HORIZONTAL SCALE:

KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER
SUPERFUND SITE
WILLOW BOULEVARD/A-SITE OU

GEOLOGIC CROSS-SECTIONB-B' WITH GROUNDWATER FLOW NET NOVEMBER 10, 2000

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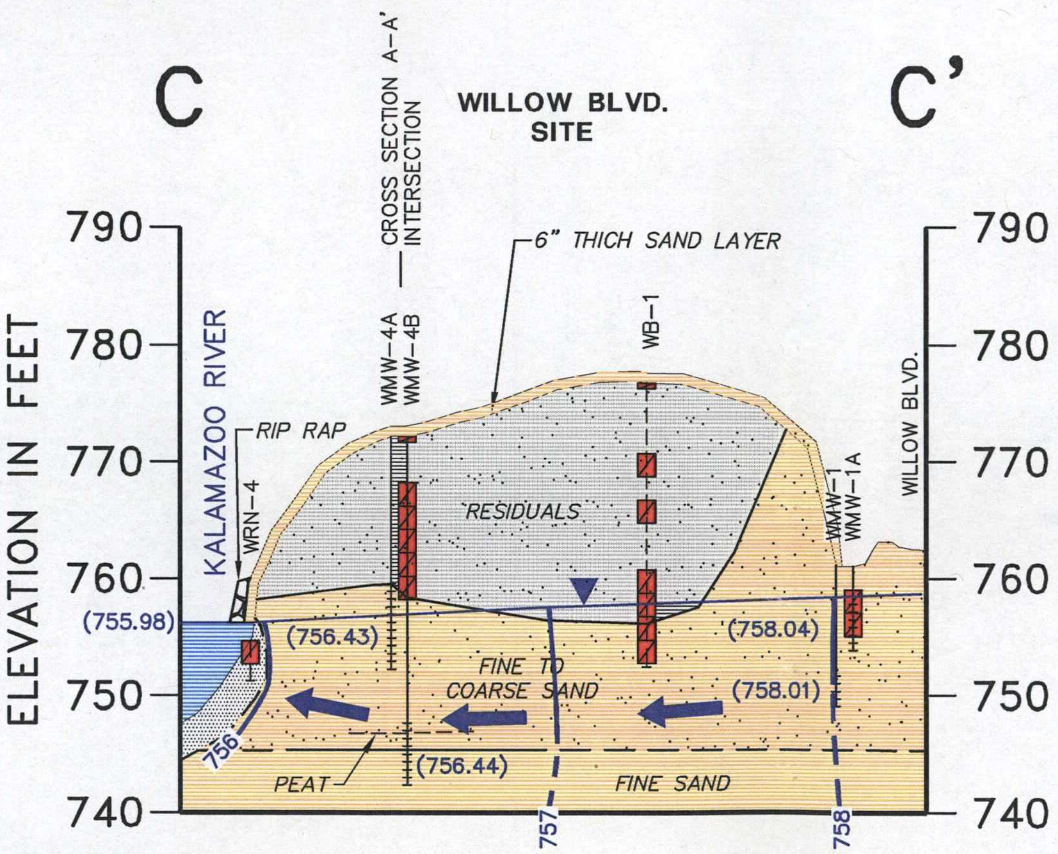
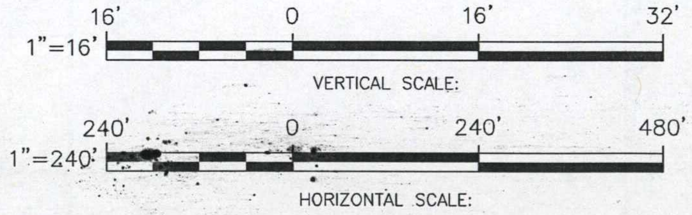
FIGURE
2





KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER
SUPERFUND SITE
WILLOW BOULEVARD/A-SITE OU

GEOLOGIC CROSS-SECTION C-C'
WITH GROUNDWATER FLOW NET
NOVEMBER 10, 2000

ARCADIS

FIGURE
3

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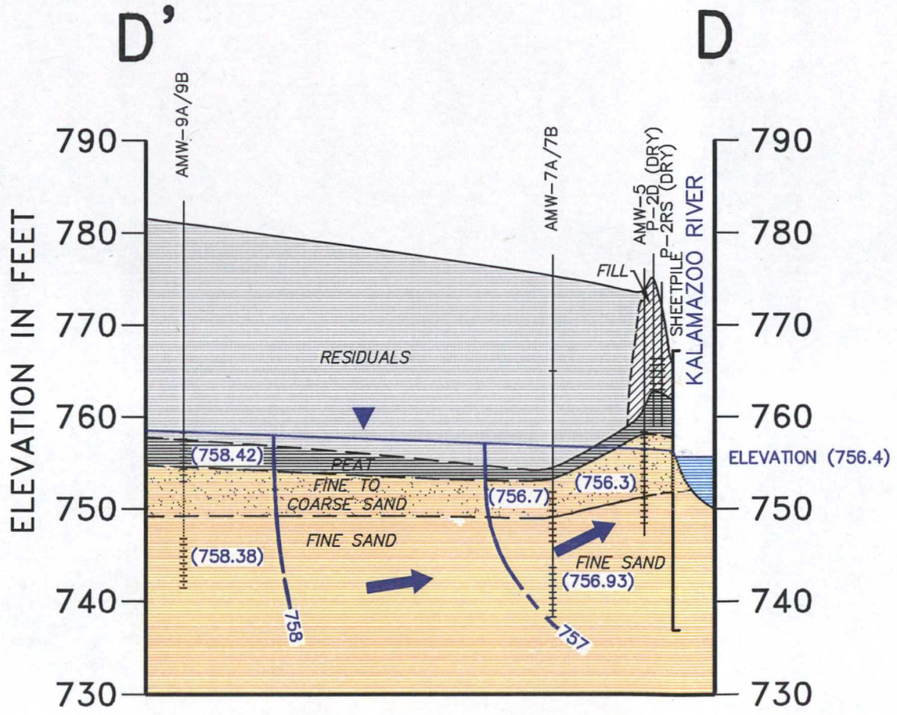

16' 0 16' 32'
1"=16'
VERTICAL SCALE:

240' 0 240' 480'
1"=240'
HORIZONTAL SCALE:

KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER
SUPERFUND SITE
WILLOW BOULEVARD/A-SITE OU

GEOLOGIC CROSS-SECTION D-D' WITH GROUNDWATER FLOW NET NOVEMBER 10, 2000

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FIGURE
4

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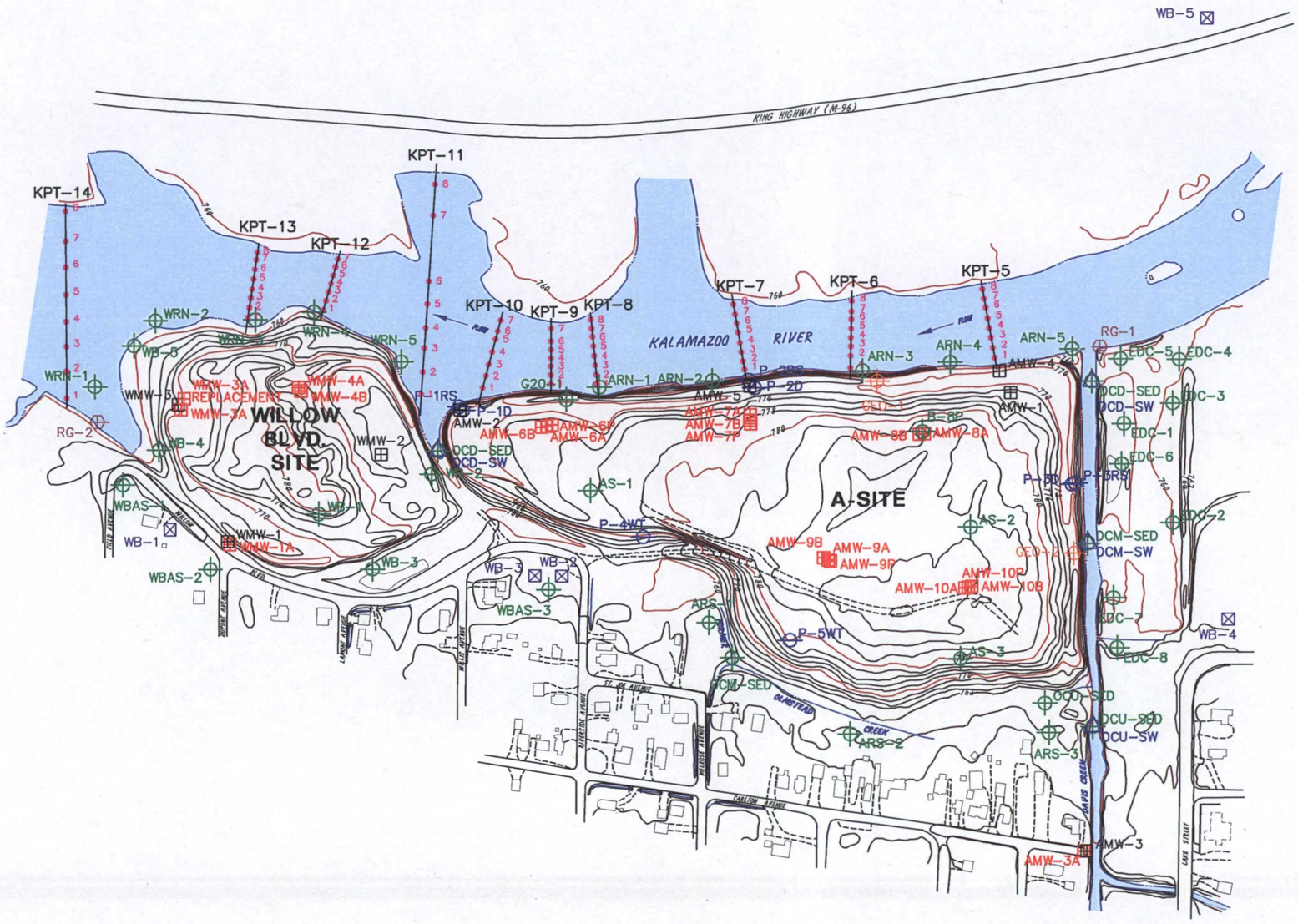
Attachment 3

Logs for Soil Borings and
Monitoring Wells at WB/A OU



LEGEND

- AMW-4 — PRE-RI MONITORING WELL
- WMW-1A — MONITORING WELL OR CLUSTER INSTALLED IN 1993
- WMW-3A REPLACEMENT — REPLACEMENT MONITORING WELL INSTALLED IN 1996
- WB-1 — BORING INSTALLED IN 1993
- GEO-1 — GEOTECHNICAL BORING INSTALLED IN 1993
- P-2D — PIEZOMETER INSTALLED IN 1993
- DCD-SW — SURFACE WATER SAMPLE, 1993 INVESTIGATION
- RG-1 — RIVER GAUGE STATION INSTALLED IN 1993
- WB-5 — AIR SAMPLER INSTALLED IN 1993
- 780 — ELEVATION CONTOUR (NGVD 1929)
- EDGE OF WATER OR DRAINAGE CHANNEL
- UNPAVED ROAD/TRAIL
- KPT-5 — SEDIMENT PROBING TRANSECT

150' 0 300'

SCALE

NOTES:

1. UNLESS OTHERWISE INDICATED ALL SAMPLE LOCATIONS SURVEYED BY WADE-TRIM INC. OCTOBER 1993 THROUGH AUGUST 1996. SAMPLES ARN-1 THROUGH ARN-5 AND WRN-1 THROUGH WRN-5 WERE SURVEYED BY BBL JULY 1993.
2. TOPOGRAPHIC MAPPING PRODUCED USING PHOTOGRAMMETRIC METHODS BY LOCKWOOD, INC. FROM AERIAL PHOTOGRAPHY FLOWN APRIL 1991. KALAMAZOO RIVER SOUTH BANK, EAST OF DAVIS CREEK REVISED PER CURRENT CONDITIONS. ADDITIONAL TOPOGRAPHIC CHANGES AFTER APRIL 1991 ARE NOT SHOWN.
3. ALL LOCATIONS ARE APPROXIMATE.

KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE
REMEDIAL INVESTIGATION/FOCUSED FEASIBILITY STUDY
WILLOW BOULEVARD/A-SITE OU

SAMPLE LOCATIONS (PRE-RI TO 1996)

FIGURE 4

X: 64582X02
I: OFF=1*, WBL*, REF
P: FIG-2-3
2/22/01 SYR-54-RLP HSB DJP
64581500\64581G01.DWG

Georgia-Pacific LLC
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site

Groundwater Elevations at Parker Hannifin Well Cluster on Willow Boulevard

Date	GS-MW-OFF-10S			GS-MW-OFF-10M			GS-MW-OFF-10D			Difference Between 10S & 10M Elevation (feet)	Vertical Gradient Between 10S & 10M (ft/ft)
	TOC Elevation (feet)	Depth to Water (feet)	Water Level Elevation (feet)	TOC Elevation (feet)	Depth to Water (feet)	Water Level Elevation (feet)	TOC Elevation (feet)	Depth to Water (feet)	Water Level Elevation (feet)		
9/23/05	760.51	3.69	756.82	760.52	3.81	756.71	760.52	2.61	757.91	-0.11	-0.006
1/16/06	760.51	2.00	758.51	760.52	2.16	758.36	760.52	0.50	760.02	-0.15	-0.008
5/15/06	760.51	2.80	757.71	760.52	1.34	759.18	760.52	0.00	760.52	1.47	0.080
9/11/06	760.51	3.10	757.41	760.52	3.24	757.28	760.52	1.58	758.94	-0.13	-0.007
1/22/07	760.51	1.40	759.11	760.52	1.48	759.04	760.52	0.00	760.52	-0.07	-0.004
7/16/07	760.51	3.75	756.76	760.52	3.82	756.70	760.52	2.20	758.32	-0.06	-0.003
1/28/08	760.51	1.73	758.78	760.52	1.79	758.73	760.52	0.00	760.52	-0.05	-0.003
9/3/08	760.51	3.63	756.88	760.52	3.70	756.82	760.52	1.78	758.74	-0.06	-0.003
3/24/09	760.51	1.12	759.39	760.52	1.12	759.40	760.52	0.00	760.52	0.01	0.001
9/21/09	760.51	2.96	757.55	760.52	3.03	757.49	760.52	1.52	759.00	-0.06	-0.003
3/22/10	760.51	1.48	759.03	760.52	1.52	759.00	760.52	0.00	760.52	-0.03	-0.002
12/15/10	760.51	2.48	758.03	760.52	2.53	757.99	760.52	1.22	759.30	-0.04	-0.002
12/20/10	760.51	--	--	760.52	2.73	757.79	760.52	1.44	759.08	--	--
6/7/11	760.51	--	--	760.52	1.02	759.50	760.52	0.00	760.52	--	--
8/30/11	760.51	0.88	759.63	760.52	2.91	757.61	760.52	1.29	759.23	-2.02	-0.110
3/26/12	760.51	1.75	758.76	760.52	1.71	758.81	760.52	0.90	759.62	0.05	0.003

Notes:
A negative vertical gradient indicates a downward flow potential.
The separation between the mid-point of the S & M well screens is 18.3 feet.
Data provided in May 9, 2012 email from Geosyntec to Doug Cowin.
The depth of monitoring well GS-MW-OFF-10S is 19.5 feet, the depth of GS-MW-OFF-10M is 37.8 feet, and the depth of GS-MW-OFF-10D is 72.3 feet.

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Attachment 7

A-Site Sheetpile Design Drawings

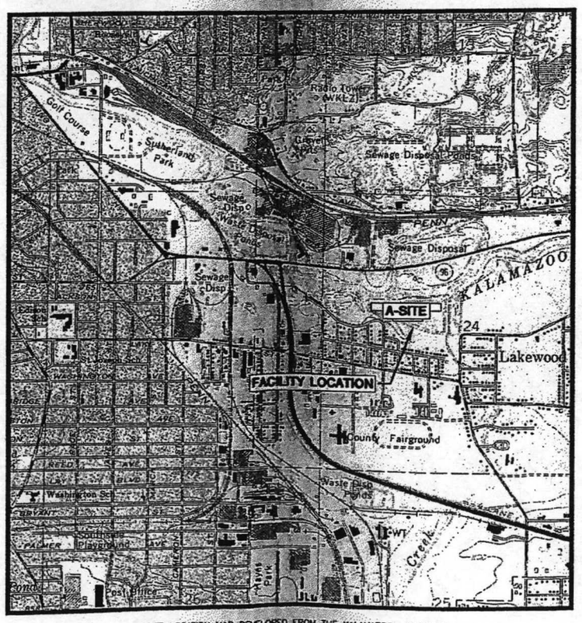
GEORGIA-PACIFIC CORPORATION
WILLOW BOULEVARD / A-SITE OPERABLE UNIT
A-SITE EROSION CONTROL SYSTEM CONSTRUCTION
CERTIFICATE
KALAMAZOO, MICHIGAN

PREPARED FOR: GEORGIA-PACIFIC CORPORATION
KALAMAZOO, MICHIGAN

PREPARED BY: RMT, INC., MICHIGAN
ANN ARBOR, MICHIGAN

DATE: AUGUST 1998

MICHIGAN STATE MAP



SITE LOCATION MAP DEVELOPED FROM THE KALAMAZOO, MICHIGAN 7.5 MINUTE U.S.G.S. TOPOGRAPHIC QUADRANGLE MAP, DATED 1967, PHOTO REVISED 1973.

SITE LOCATION MAP

DRAWING INDEX

NOTE: THESE PLANS ARE ACCOMPANIED BY SPECIFICATIONS OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND INTENDED TO BE USED AND REVIEWED TOGETHER.

NOTE: THE CONTRACTOR SHALL NOTIFY ALL AREA UTILITY COMPANIES PRIOR TO COMMENCING WORK ON THIS PROJECT, IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.

RMT INC. MICHIGAN
1143 HIGHLAND DRIVE, SUITE B
ANN ARBOR, MI 48108-2237
P.O. BOX 991 48106-0991
PHONE: 734-971-7080

NOTE: THESE PLANS ARE ACCOMPANIED BY SPECIFICATIONS OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND INTENDED TO BE USED AND REVIEWED TOGETHER.

NOTE: THE CONTRACTOR SHALL NOTIFY ALL AREA UTILITY COMPANIES PRIOR TO COMMENCING WORK ON THIS PROJECT, IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.

LEGEND

- 780 — ELEVATION CONTOUR (NGVD 1929)
- EDGE OF WATER OR DRAINAGE CHANNEL
- APPROXIMATE PROPERTY LINE
- WATER FLOW DIRECTION
- AMW-6A ● EXISTING MONITORING WELL LOCATION AND NUMBER
- P-5WT ◎ PIEZOMETER LOCATION LOCATION AND NUMBER

NOTES

1. UNLESS OTHERWISE INDICATED ALL SAMPLE LOCATIONS SURVEYED BY WADE- TRIM INC. OCTOBER 1993 THROUGH JANUARY 1994. SAMPLES ARN-1 THROUGH ARN-5 AND WRN-1 THROUGH WRN-5 WERE SURVEYED BY BLASLAND, BOUCK & LEE, INC. JULY 1993
2. TOPOGRAPHIC MAPPING PRODUCED USING PHOTOGRAMMETRIC METHODS BY LOCKWOOD, INC. FROM AERIAL PHOTOGRAPHY FLOWN APRIL 1991. TOPOGRAPHIC CHANGES AFTER APRIL 1991 ARE NOT SHOWN.
3. PROPERTY LINE SURVEYED BY ATWELL - HICKS, INC. JANUARY 1998.

N

0 100' 200' 300' 400'
SCALE IN FEET

NO.	BY	DATE	REVISION	APP'D.
5.				
4.				
3.				
2.				
1.				

GEORGIA-PACIFIC CORPORATION
WILLOW BOULEVARD / A-SITE OPERABLE UNIT
A-SITE EROSION CONTROL SYSTEM

EXISTING CONDITIONS

DRAWN BY: LUCIDOS	SCALE: 1" = 100'	PROJECT NO.	4017.03
CHECKED BY: FBM		FILE NO.	0352.DWG
APPROVED BY:	DATE PRINTED:	SHEET 2 of 6	
DATE: AUGUST 1998			

RMT INC., MICHIGAN
1143 HIGHLAND DRIVE, SUITE B
ANN ARBOR, MI. 48108-2237
P.O. BOX 991 48106-0991
PHONE: 734-971-7080
FAX: 734-971-9022

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Operator Name: lucidos
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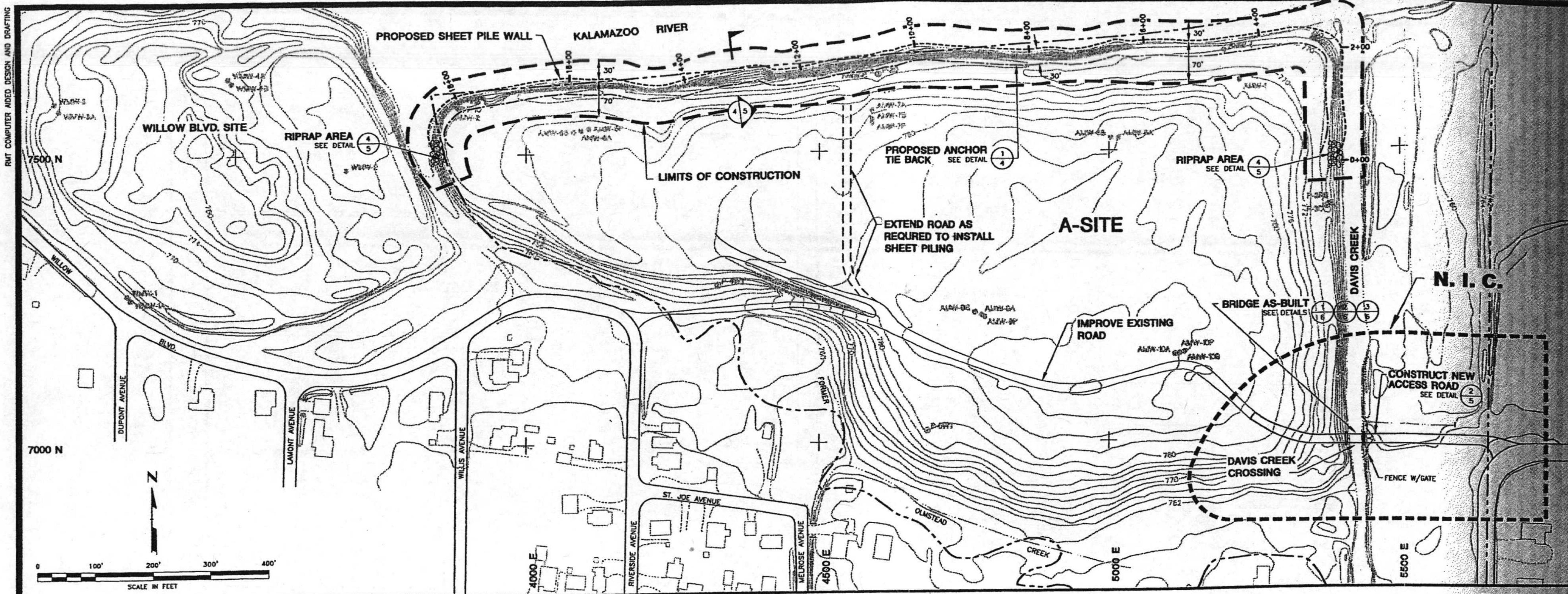

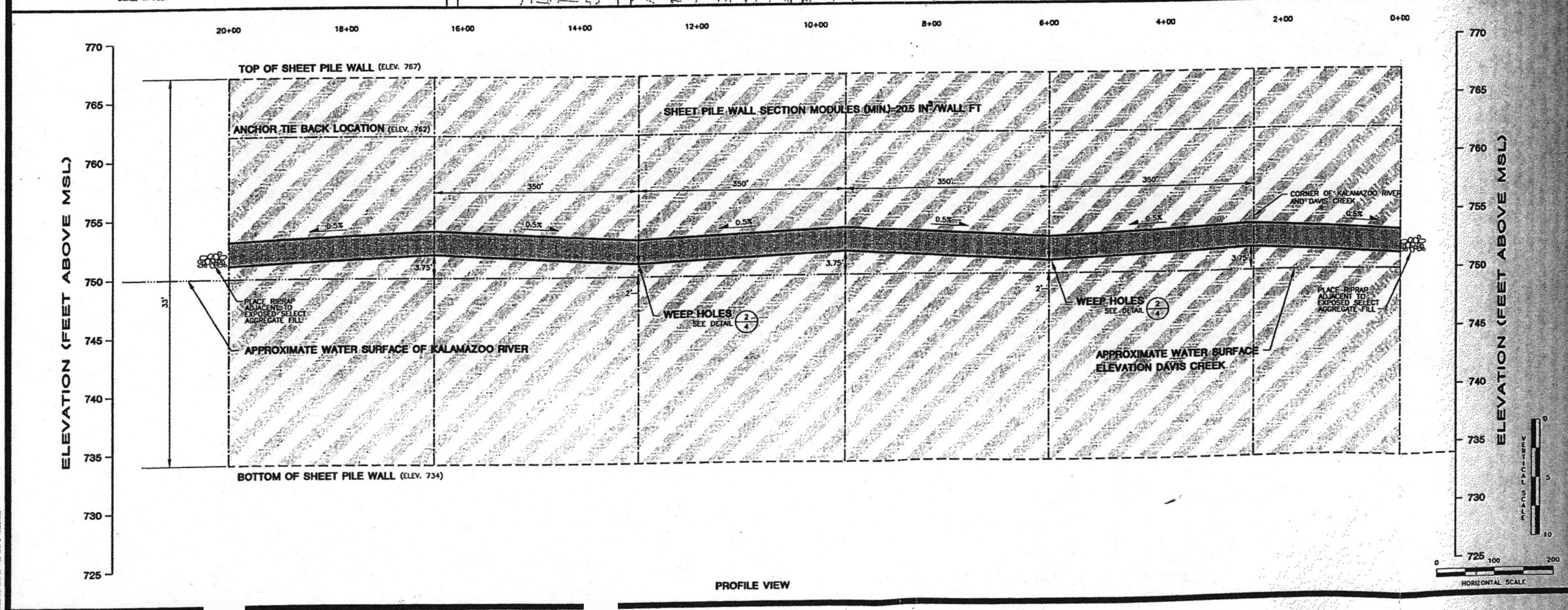

LEGEND

- APPROXIMATE PROPERTY LINE
- EXISTING 2 FOOT CONTOUR
- EXISTING 10 FOOT CONTOUR
- EXISTING SHORE LINE
- MONITORING WELL LOCATION AND NUMBER
- PIEZOMETER LOCATION AND NUMBER
- PROPOSED ANCHOR TIE BACK
- PROPOSED SHEET PILE WALL
- FLOW DIRECTION
- LIMITS OF CONSTRUCTION
- BUILDING
- RIPRAP AREA
- SELECT AGGREGATE FILL

NOTES

1. UNLESS OTHERWISE INDICATED ALL SAMPLE LOCATIONS SURVEYED BY WADE- TRIM INC. OCTOBER 1993 THROUGH JANUARY 1994. SAMPLES ARN-1 THROUGH ARN-5 AND WRN-1 THROUGH WRN-5 WERE SURVEYED BY BLASLAND, BOUCK & LEE, INC. JULY 1993.
2. TOPOGRAPHIC MAPPING PRODUCED USING PHOTOGRAMMETRIC METHODS BY LOCKWOOD, INC. FROM AERIAL PHOTOGRAPHY FLOWN APRIL 1991. TOPOGRAPHIC CHANGES AFTER APRIL 1991 ARE NOT SHOWN.
3. THE GRID SYSTEM IS TRUNCATED STATE PLANE COORDINATES. ACTUAL STATE PLANE COORDINATES ARE 12800000 GREATER FOR THE EASTING AND 288000 GREATER FOR THE NORTHING SHOWN ON THIS SHEET. I.E. 7500N IS 287500N AND 5000E IS 12805000E IN THE STATE PLANE COORDINATE SYSTEM.
4. CONTRACTOR TO PROTECT EXISTING MONITORING WELLS AND PIEZOMETERS.
5. MAXIMUM SLOPE GRADE ON EXTERIOR SLOPE IS 2H:1V.
6. FINAL PLAN LOCATION OF SHEETPILE TO BE DETERMINED IN THE FIELD.

NOTE: THESE PLANS ARE ACCOMPANIED BY SPECIFICATIONS OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND INTENDED TO BE USED AND REVIEWED TOGETHER.

NOTE: THE CONTRACTOR SHALL NOTIFY ALL AREA UTILITY COMPANIES PRIOR TO COMMENCING WORK ON THIS PROJECT, IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.

NO.	BY	DATE	REVISION	APP'D.
5.				
4.				
3.				
2.				
1.				

GEORGIA-PACIFIC CORPORATION
WILLOW BOULEVARD / A-SITE OPERABLE UNIT
A-SITE EROSION CONTROL SYSTEM

SHEETPILE WALL PLAN AND PROFILE

DRAWN BY: LUCIDOS	SCALE: 1" = 100'	PROJECT NO.	4017.03
CHECKED BY: FBM		FILE NO.	0353.DWG
APPROVED BY:	DATE PRINTED:	SHEET 3 of 6	
DATE: AUGUST 1998			

RMT
1143 HIGHLAND DRIVE, SUITE B
ANN ARBOR, MI. 48108-2237
P.O. BOX 991 48106-0991
PHONE: 734-971-7080
FAX: 734-971-9022

RMT COMPUTER AIDED DESIGN AND DRAFTING

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Operator Name: lucidos
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Dwg Size: 780502 Bytes
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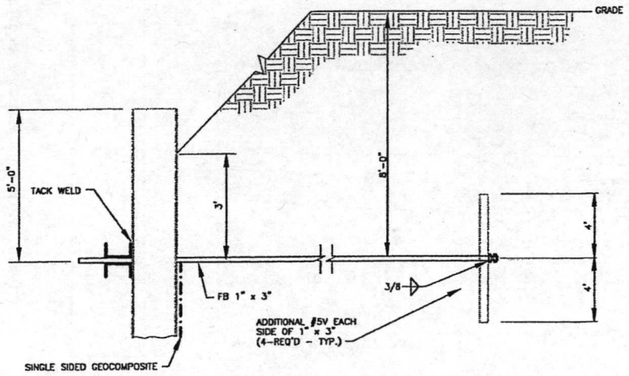
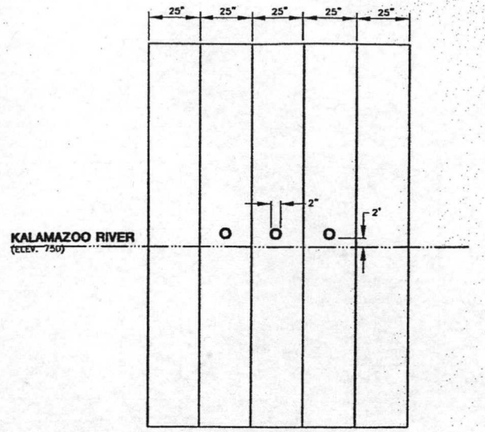
Plot Time: 09:09.0835 AM
Attached Xref's: No xref's Attached.



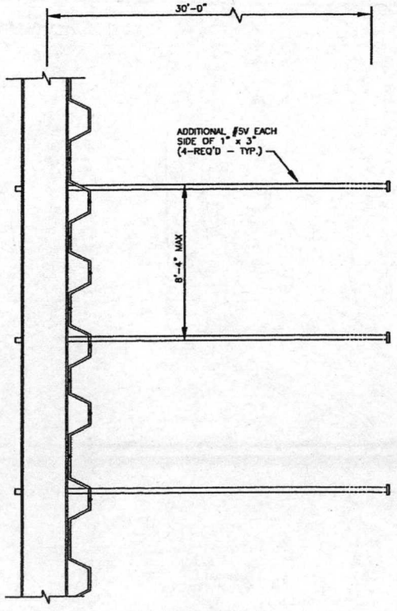
SECTION



2/4 WEEP HOLES
(NOT TO SCALE)

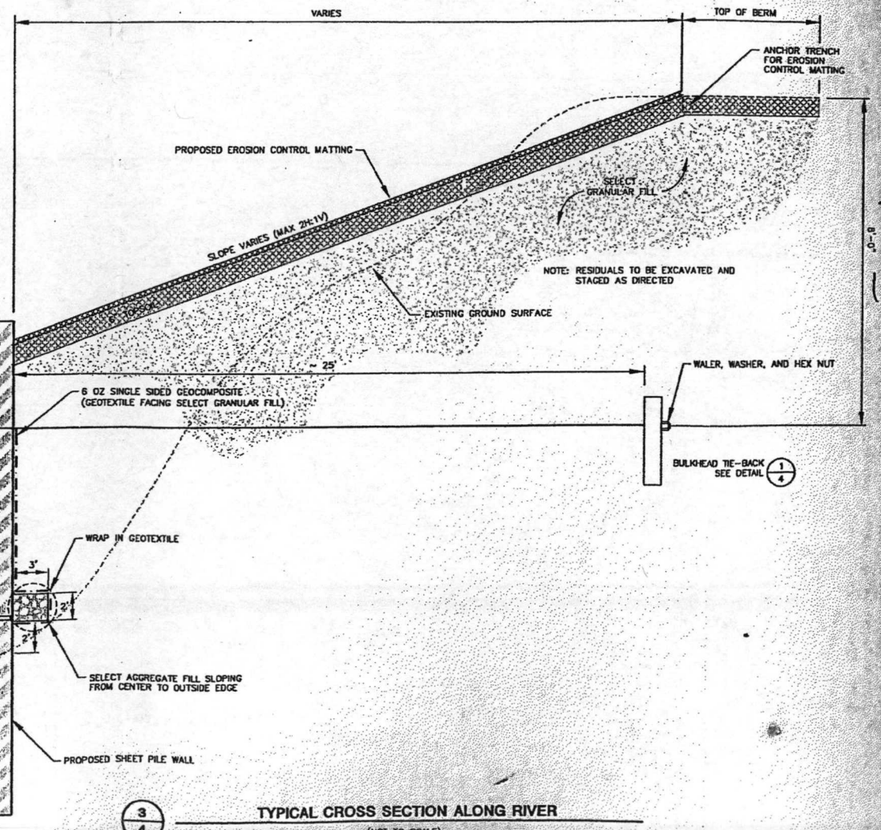
NOTES FOR SHEET PILE AND TIE BACK CONSTRUCTION

1. CONTRACTOR SHALL SUBMIT PROPOSED SEQUENCE OF CONSTRUCTION FOR SHEET PILE AND TIE BACK ANCHOR INSTALLATION.
2. CONTRACTOR SHALL SUBMIT DETAILS FOR PROPOSED SHEET PILE MATERIALS.
3. CONTRACTOR SHALL SUBMIT DETAILS FOR PROPOSED TIE BACK SYSTEM INCLUDING
   - WALER
   - CONNECTION DETAILS
   - TIE ROD OR BAR DIMENSIONS
   - SPLICE DETAILS FOR WALER AND TIE ROD/BAR
   - PROTECTIVE COATING FOR ALL BURIED STEEL.
4. TRENCH FOR CONCRETE ANCHOR SHALL BE EXCAVATED INTO UNDISTURBED SOIL AS APPROVED. REINFORCING SHALL BE CONTINUOUS THROUGH ANY JOINTS BETWEEN POURS.

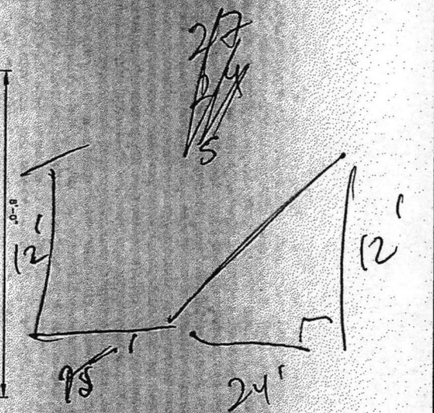


PLAN VIEW

1/4 BULKHEAD TIE-BACK
(NOT TO SCALE)



3/4 TYPICAL CROSS SECTION ALONG RIVER
(NOT TO SCALE)



NOTE: THESE PLANS ARE ACCOMPANIED BY SPECIFICATIONS OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND INTENDED TO BE USED AND REVIEWED TOGETHER.

NOTE: THE CONTRACTOR SHALL NOTIFY ALL AREA UTILITY COMPANIES PRIOR TO COMMENCING WORK ON THIS PROJECT, IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.

NO.	BY	DATE	REVISION	APP'D.
5.				
4.				
3.				
2.				
1.				

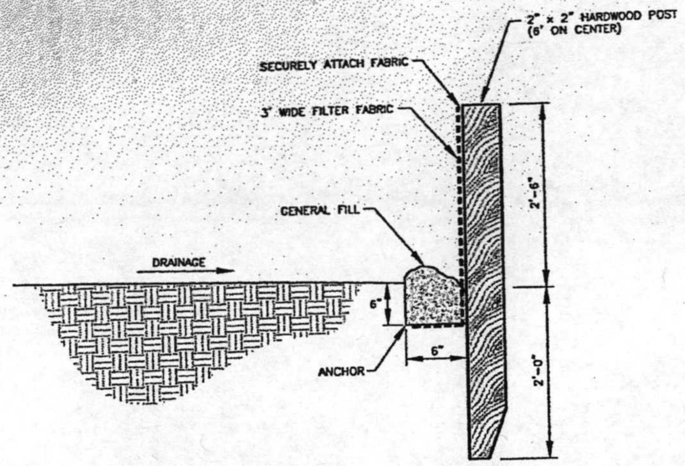
GEORGIA-PACIFIC CORPORATION
WILLOW BOULEVARD / A-SITE OPERABLE UNIT
A-SITE EROSION CONTROL SYSTEM

DETAILS

DRAWN BY:	LUCIDOS	SCALE:	PROJECT NO. 4017.03
CHECKED BY:	FBM	NTS	FILE NO. 0354.DWG
APPROVED BY:		DATE PRINTED:	Sheet 4 of 6
DATE:	AUGUST 1998		

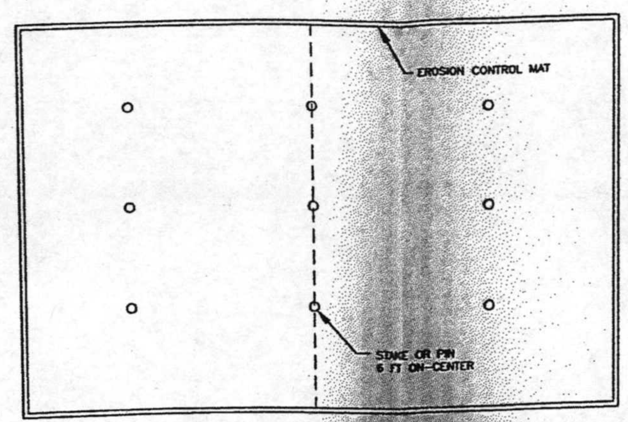
RMT, INC., MICHIGAN
1143 HIGHLAND DRIVE, SUITE B
ANN ARBOR, MI. 48108-2237
P.O. BOX 991 48106-0991
PHONE: 734-971-7080
FAX: 734-971-9022

RMT COMPUTER AIDED DESIGN AND DRAFTING



(1/5) **SEDIMENT CONTAINMENT FENCE**

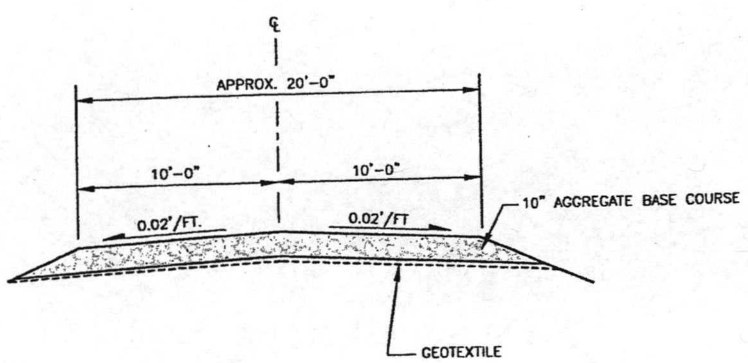
(NOT TO SCALE)



NOTE: PLACE EROSION CONTROL MAT ON THE PROPOSED GROUND SURFACE BETWEEN SHEET PILE WALL AND TOP OF SLOPE

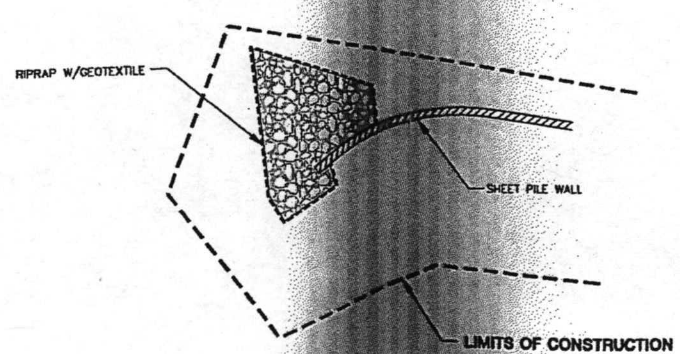
(3/5) **EROSION CONTROL MAT**

(NOT TO SCALE)



(2/5) **ACCESS ROAD**

(NOT TO SCALE)



(4/5) **PLAN VIEW ON ENDS OF SHEET PILE WALL**

(NOT TO SCALE)

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NO.	BY	DATE	REVISION	APP'D.
5.				
4.				
3.				
2.				
1.				

GEORGIA-PACIFIC CORPORATION
WILLOW BOULEVARD / A-SITE OPERABLE UNIT
A-SITE EROSION CONTROL SYSTEM

DETAILS

DRAWN BY: LUCIDOS	SCALE: NTS	PROJECT NO.	4017.03
CHECKED BY: FBM		FILE NO.	0355.DWG
APPROVED BY:	DATE PRINTED:	Sheet 5 of 6	
DATE: AUGUST 1998			

RMT
1143 HIGHLAND DRIVE, SUITE B
ANN ARBOR, MI. 48108-2237
P.O. BOX 991 48106-0991
PHONE: 734-971-7080
FAX: 734-971-9022

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